

High-Speed & Intercity Passenger Rail

SPEEDLINES



DECEMBER 2019
ISSUE #27

Population and economic growth, coupled with the trend over the last 20 years towards urbanization, are driving congestion and demand in major metropolitan areas and the corridors that connect them.

» p. 22

6TH ANNUAL
HSR POLICY FORUM

» p. 11

Lone Star Rail

» p. 14

PIEDMONT-ATLANTIC MEGAREGION

» p. 17

CONTENTS

2

SPEEDLINES MAGAZINE



On the front cover:

DENVER'S LANDMARK-THE MOFFAT TUNNEL MAKES TRAVEL FROM DENVER TO SALT LAKE CITY AND WEST MUCH QUICKER AND ATTRACTIVE. THESE DAYS RAIL AND SKI ENTHUSIASTS ALIKE BOAST OF THE MARVELOUS STRUCTURE.

ABOVE: The success of Apple Pay could go to the next level if commuters end up using it instead of their metro cards. Public transit authorities around the world have been adopting contactless payment options that enable riders to hover their smartphone above a turnstile instead of swiping a card.

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3 CHAIRMAN'S LETTER

Greetings from our Chair, Al Engel

4 APTA'S TRANSFORM MEETING IN NYC

FEATURE ARTICLE:

6 NORTH CAROLINA'S PROGRESS

9 VIRGINIA LEADING PASSENGER RAIL

11 6TH ANNUAL HSR POLICY FORUM

14 TEXAS TRIANGLE MILESTONE

15 TRANSPORTATION GROUP DISCUSSION

17 ATLANTA TO CHARLOTTE TRANSIT

21 MOROCCO'S 1ST HSR LINE

22 AMTRAK'S RIDERSHIP STATISTICS

23 CHINA'S HSR DEVELOPMENT

25 THAILAND'S FIRST PHASE OF HSR

26 LOS ANGELES TO LAS VEGAS

27 UIC WORLD CONGRESS BEIJING



A letter from our Chair:

DECEMBER 2019

HS&IPR *Committee & Friends*

When advocating for more strategic investment in the mobility innovation of high -speed rail one often gets the response that we [the USA] just can't afford it. How is that when we are one of the richest countries and largest economy in the world and can't afford to invest properly in a balanced ground transportation system?

I recently saw an interesting comparison of California with Taiwan (population 23 million), which has a modern high-speed rail system connecting its major cities. In the Orange County Register the reporter, Joe Mathews, observes, "... with median household income just one fourth of ours [CA] --- but it [Taiwan] still managed to afford high-speed rail." The line of 225 miles was built at a cost of \$18 billion and completed in 7 years. While government sponsored the project, it is operated as a concession by a private operator created for this special purpose. Highly popular, last year it had 64 million riders. Perhaps it could be an object lesson for the U.S.?

At the last HS&IPR Committee meeting members grappled with the question of whether HSR should be rebranded for the U.S. in light of the resistance by government and business leaders in advancing a national program. After a lively discussion facilitated by Don Leidy and Karen Philbrick, the group came to the conclusion that what we call it is not the problem. The challenge, rather, lies with the advocates to better define the benefits and articulate the arguments for greater public and private investment. Building the political will to support a national HSR program remains a large hurdle. Nevertheless, we are encouraged by success stories such as the Florida Virgin/Brightline service and Amtrak's investment in state-of-the art HS equipment for the NEC along with other developments. Many of these success stories were discussed at the 6th HSR Policy Forum on December 4, 2019. And my congratulations to Melanie Johnson and her programs team for developing an excellent event.

In order to provide a resource to states and regional planning entities to more fully account for the benefits and make the "business case" for investing in HSR, our committee continues to advance its work on ROI quantification. In Phase II a comprehensive and prescriptive methodology for determining ROI for HS&IPR projects will be developed. The study would also quantify the economic benefits of linking mega-regions. The funding for the 2nd phase is 50% in place and we are hopeful that with corporate sponsorship for the balance, we will get underway in the near future.

The recent APTA Annual TRANSform meeting in New York had some excellent HSR content. Beyond the Committee meeting on Sunday, two conference sessions delivered timely domestic and international material. The challenge and accomplishments of the NEC were covered on Monday and Wednesday there was a session devoted to the profound Chinese HSR achievement. Also at the Annual meeting the APTA Board of Directors met and approved the reauthorization proposal to Congress which includes continuation of the Rail Title with a rail trust fund and a \$32 billion authorization over six years. We thank both our outgoing Chair David Stackrow and incoming Chair Nuria Fernandez for their leadership in building support for this comprehensive public transportation recommendation.

*This is the 27th issue of the new SPEEDLINES, which was started in March 2011. Wendy Wenner is a charter member of the SPEEDLINES team and I thank her, Ken Sislak and his associates Eric Peterson and David Wilcock for another fine issue. I hope to see many of you at the next HS&IPR Committee meeting on March 15, 2020 in Washington D.C. at the time of the APTA Legislative Conference. **My best wishes for an enjoyable holiday season and a Happy New Year.***

APTA TRANSFORM CONFERENCE

ANNUAL MEETING - OCTOBER 13-16, 2019

WHAT BETTER LOCATION THAN NEW YORK CITY -THE EPICENTER
OF BUSINESS, MEDIA, CULTURE-
AND TRANSPORTATION...



TO LAUNCH APTA'S
2019 TRANSFORM
CONFERENCE:
A REIMAGINED APTA
ANNUAL MEETING.

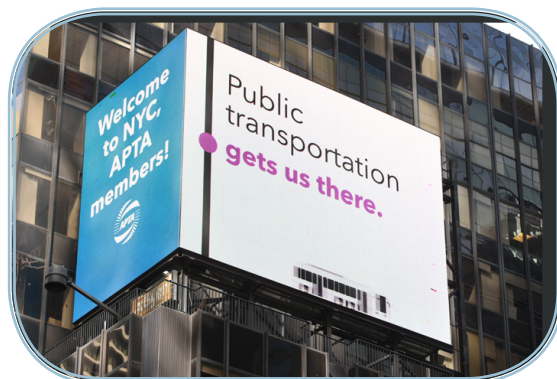
The APTA TRANSform Conference provided several opportunities for HS&IPR Committee members and friends to engage in the business of the day. The committee kicked off the conference with the traditional 7:30 AM Sunday meeting slot and concluded Wednesday

morning with a panel discussion on high-speed rail from around the world.

The committee meeting was led by Vice Chair Chris Brady in Chairman Al Engel's absence. The agenda included a legislative update; discussion about the Sixth HSR Policy Forum coming in December 2019; a report from the September 2019 Joint Meeting of APTA/TRB/AASHTO in Hartford, CT; next steps for the Return on Investment Study (ROI); a roundtable on Passenger Rail and Energy Efficiency; and a discussion on the possibilities to rebrand high-speed rail in the U.S.

The legislative update and the report from the Hartford joint meeting provided information on passenger rail proposals that may be included in the forthcoming federal surface transportation act reauthorization. The Hartford report included a call for higher levels of funding for both passenger rail and transit research.

The ROI Study update focused on the prospectus for Phase II of the APTA-sponsored study, Framework for Assessing the Return on Investment from High-Speed and Intercity Passenger Rail Projects. The Phase I report was released in October 2017. This initial study established that high-speed and intercity passenger rail projects have





broad benefits to society but there is no consistent means of establishing a business case. The Phase II proposal would establish a comprehensive and well-defined approach for determining return on investment and quantifying the economic benefits of linking mega-regions.

The Passenger Rail and Energy Efficiency Roundtable, moderated by Jeff Wharton, included two new faces from related transportation industries: Shruti Vaidyanathan, senior advisor for research with the American Council for an Energy Efficient Economy (ACEEE), and Nick Sifuentes, executive director for the Tri-State Transportation Campaign. The audience learned about the integration of emerging mobility options into existing transportation systems, transportation equity, climate policies, funding needs, energy impacts on different modes of transportation and leveraging research to access data to make informed decisions that impact riders.

The Rebranding High-Speed Rail in the U.S. discussion was premised on the notion that there is too much negative publicity in the U.S. around high-speed rail projects. The question put forth was whether it is time to rebrand the concept to shed the negative images associated with high-speed rail in the U.S. The consensus following the discussion was that it is likely best to stick with a brand that is successfully used around the world.

The committee's activities at the TRANSform Conference itself were capped with a Wednesday morning session on Global Lessons and Practices for High-Speed and Intercity Passenger Rail. Peter Gertler facilitated the panel, which examined why high-speed passenger rail service is thriving around the world. Business models for high-speed and intercity passenger rail are successfully operating in Europe and Asia by building and operating sustainable systems. France and Germany are world leaders in high-speed rail service, but China has constructed and launched more than 5,000 miles of high-speed rail in less than a decade. This session sought to identify the lessons the U.S. could learn from the experiences of other nations.



RAIL IN NORTH CAROLINA

IMPROVED IMPACTS

The Rail Division of North Carolina DOT is responsible for the safe and efficient movement of people and goods on North Carolina's railroads and for supporting rail-related job creation and economic growth statewide. Through a comprehensive program of improvements focusing on freight, safety and passenger initiatives, the impact of rail programs and services in our state is increasing dramatically.

INCREMENTAL INTERCITY PASSENGER TRAIN SERVICE

The NCDOT has invested in the modernization of the 174-mile Piedmont Corridor between the state's largest cities, Raleigh and Charlotte, through a series of railroad infrastructure and safety improvements that began in 1992 when FRA first designated this route part of the Southeast Corridor (SEC). The Rail Division began work in earnest to restore intercity passenger rail service, plan for and build improvements to make this corridor safer and add capacity. Just two years earlier, in 1990, NCDOT and Amtrak partnered to add daily passenger train service among Charlotte, Raleigh and New York City.

When the Rail Division completed the first phase of grade crossing safety improvements in 1995, state-owned Piedmont passenger service began. With equipment owned by NCDOT and service provided by Amtrak, the Piedmonts worked in concert with the Carolinian trains to provide two daily round trips between Charlotte and Raleigh.

Incremental improvements to the railroad continued with the "Sealed Corridor" grade crossing safety program (1995-2002) and the "North Carolina Railroad Improvement Program" (2002-2009). The combination of these programs shaved 50 minutes off the four-hour

trip between Charlotte and Raleigh, reducing travel time between the cities to three hours and 10 minutes, and improving reliability and safety with fewer grade crossing incidents. With the completed improvements also came increased railroad capacity, and the department added a midday Piedmont round trip in 2010.

That same year the Rail Division was awarded a \$520 million federal American Recovery and Reinvestment Act grant that funded the state's next and largest program of rail improvements, the "Piedmont Improvement Program" (PIP). PIP projects included:

- Construction of 32 miles of double track and passing sidings;
- Addition of state-of-the-art No. 24 higher-speed crossovers at five locations;
- Realignment of more than 30 railroad curves;
- Closing more than 40 at-grade crossings;
- Building 12 advanced crossing signal systems;
- Constructing 13 new bridges and 13 miles of roadways;
- Building equipment maintenance facility improvements at Raleigh and Charlotte;
- Improving stations in Burlington, Cary, High Point, and Kannapolis; and
- Adding five locomotives, two cab control units, and nine passenger cars to the Piedmont fleet.

All PIP projects were completed in September 2017, and in June 2018 another round trip was added between Charlotte and Raleigh. From two round trips to four round trips (including the Carolinian), our ridership between Raleigh and Charlotte has increased by 96 percent over the period 2009-2019, with a total of 268,274 riders on the Piedmont in FY 2019. A fifth round trip (fourth Piedmont roundtrip), made possible by these improvements, is planned for 2023.

The program's safety and capacity improvements have benefited both passenger and freight services on the Piedmont Corridor. Communities have safer railroad crossings, bridges to separate train and vehicular traffic, and access to comfortable, inviting passenger train services. The corridor is served by eight state-supported passenger trains daily and remains the busiest Norfolk Southern freight corridor in the state.

While significant work has been completed between Raleigh and Charlotte, several additional improvements are underway to further separate the railroad and highway networks while improving the performance and reliability of rail operations.

In 2013, North Carolina's transportation funding formulas were changed under the Strategic Transportation Investments (STI) law. The new formula allows non-highway modes including rail to compete for state transportation funding in a data-driven process. Through the program, 16 new grade separations along the corridor are proposed. Also planned are siding improvements to improve freight and passenger fluidity, improvements at several station locations and geometry improvements on the slower alignment segments between Greensboro and Durham.

The Charlotte to Raleigh corridor is owned by the North Carolina Railroad Company and operated by Norfolk Southern. NCDOT is working with these partners and communities along the corridor to advance these improvements.

PROGRESS IN THE SOUTHEAST CORRIDOR

For many years the department has provided a leadership role in developing the Southeast Corridor, a high-performing regional network for passenger and freight rail. In 2017, NCDOT received a Record of Decision (ROD) from FRA for improvements between Raleigh and Richmond via the CSX S-Line route. The segment between Petersburg and Raleigh is a critical

missing link in developing the Southeast Corridor as it connects the Northeast Corridor and Virginia with the entire Southeast region.

Currently there is local freight service between Raleigh and Ridgeway, NC, while from Ridgeway north to Petersburg the tracks have been removed. Repurposing this underutilized and partially removed line will reduce travel times by more than an hour, provide opportunities for new regional and intercity passenger services, enhance resiliency of the freight network, and spur economic development activity.

Building on the completed ROD, NCDOT is already improving safety along the corridor through five new grade separations in the urban areas of Raleigh and Wake Forest.

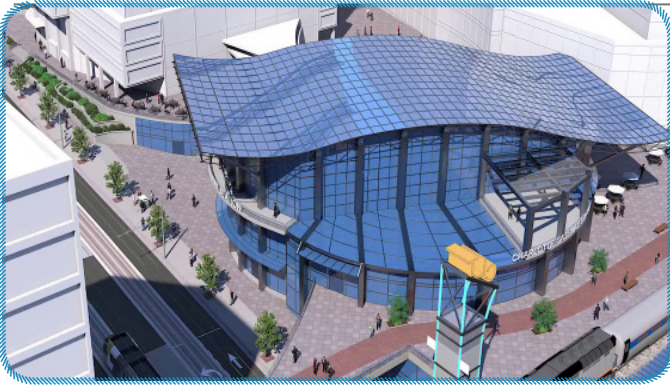
In building the vision for this new high-performance rail corridor, NCDOT is working with communities, regional economic development organizations, and many other stakeholders. The corridor presents a tremendous opportunity to align with new economic development patterns in the greater Triangle region, including higher-density commercial and freight access for industrial development.

North Carolina is also partnering with officials in Washington, DC, Virginia, South Carolina, Tennessee, Georgia and Florida to form the Southeast Corridor Commission, which will develop and promote a plan to finance, design, construct and operate interstate rail services.

NORTH CAROLINA'S STATION IMPROVEMENT PROGRAM

As passenger train service has grown in North Carolina, the Rail Division has improved 13 active passenger stations across the state through restoration, adaptive reuse or new construction. A recent successful example is the July 2018 opening of Raleigh Union Station in Raleigh's Warehouse District, replacing a small, outdated station. The station opening has resulted in \$700 million of development into the surrounding area.

The Rail Division is now working in partnership with the city of Charlotte to construct the Charlotte Gateway Station in Uptown, providing improved access for business travelers and a world-class gateway for visitors to North Carolina's largest city. The new station, located adjacent to Bank of America Stadium, replaces



an outdated 1960s facility about one mile north of Uptown.

The Rail Division is leading the construction of the first phase of the project to build bridges, tracks and a platform. The station will be built concurrently as part of a large multi-use public-private partnership venture. The project is targeted for completion in 2023 and is anticipated to significantly boost rail ridership due to its improved location and amenities.

IMPROVING PIEDMONT EQUIPMENT

A unique aspect of North Carolina's passenger rail program is the ownership of its locomotive and railcar fleet. During the early development of Piedmont service, passenger equipment was in limited supply. NCDOT contracted to rebuild 1950- and 1960-era railcars and purchased secondhand locomotives for the Raleigh-Charlotte route.

This year, the Rail Division is taking the next steps with its equipment program through a \$76.9 million grant under the FRA State of Good Repair Program. This grant will allow the purchase of a fleet of new coaches to phase out the oldest cars in the Piedmont fleet while allowing for more frequent service options in the future. It will also cover construction of additional improvements to the Locomotive and Railcar Maintenance Facility in Charlotte that supports the Piedmont service.

FREIGHT PROJECTS IN NORTH CAROLINA

Considering the significant positive impact freight rail has on the economy, job creation and business growth, the Rail Division maintains a focus on freight, logistics, ports and intermodal facilities. The division coordinates with federal agencies, railroad companies, industry and corporate leaders, other state agencies and economic developers to accomplish these goals by improving

and expanding freight rail service.

The Strategic Transportation Investment (STI) program has provided a new funding source for major infrastructure projects on Class 1 railroads. The Carolina Connector (CCX) intermodal transportation facility in Rocky Mount is a great example of this funding being put to work. The facility is being built on a 330-acre site in Edgecombe County and will serve many industries with efficient access to rail, helping get products to customers and spurring growth in the region while reducing long-haul truck trips. It is being built on the CSX mainline and will be operated by CSX.

Statewide rail projects are also being built through the Freight Rail and Rail Crossing Safety Initiative (FRRCSI), a program appropriated by the North Carolina General Assembly since 2013. FRRCSI funds the Rail Industrial Access Program and the Short Line Infrastructure Assistance Program, which contribute to funding for economic development and safety projects in the state. FRRCSI funds have also improved hundreds of crossings across the state and have been used to preserve rail corridors deemed valuable for economic development purposes.

The department also leverages federal discretionary grants for strategic freight projects. This year the department received a \$34.9M federal CRISI grant, leveraging STI infrastructure projects to further improve rail access into the strategic Port of Wilmington. The work includes speed upgrades, crossing safety improvements, siding extensions, signaling and movable bridge improvements to enhance rail and intermodal services.

HOW WE MANAGE THE PROGRAM

The success of North Carolina's rail program lies in the quality and balance of its safety, freight and passenger rail initiatives. At the center of the Rail Division's initiatives and activities is the strategic planning process and the State Rail Plan. Through this process, the long-term vision for rail investments is developed. Input is received from our partners – federal, state and local governments as well as the railroads, shippers, business community and the public. This planning process ensures that the Rail Division stays on track with the mission for which it was created: to help develop and maintain a safe and effective passenger and freight rail system while enhancing local and statewide economic development.

LONG BRIDGE REACHES MAJOR MILESTONE

EXPANSION MOVES FORWARD

Contributed by: Lee Farmer (VHB) and Kelsey Robertson (VHB)

The District Department of Transportation (DDOT), the Virginia Department of Rail and Public Transportation (DRPT) and FRA continue to move forward with the Long Bridge Project, which will expand rail capacity across the Potomac River between Virginia and the District of Columbia.

The additional capacity will enable the growth of passenger and commuter rail to serve economic centers north and south of Long Bridge, including the new Amazon headquarters at National Landing [Crystal City in Arlington, Virginia]. It will also link the Northeast Corridor and the developing Southeast High-Speed Rail Corridor between Washington, DC, and Charlotte, NC.

The Long Bridge Project reached a major milestone in September with the release of the Draft Environmental Impact Statement (Draft EIS), led by DDOT and FRA. The Draft EIS analyzes the environmental impacts of the project alternatives and identifies the project's preferred alternative. Following completion of the National Environmental Policy Act (NEPA) process in Summer 2020, DRPT will lead design and construction. DRPT and DDOT are currently working to secure funding for the project.

The preferred alternative involves construction of a new two-track railroad bridge over the Potomac River upstream of the existing bridge and expansion of the corridor from two to four tracks. The existing Long Bridge will be retained. In addition to the new bridge over the river, this alternative includes construction of five other new bridges in the corridor. The project will also include construction of a separate bicycle and pedestrian crossing as mitigation for impacts to parkland on either side of the river. The preferred alternative

is estimated to cost approximately \$1.9 billion.

PROJECT BACKGROUND

The existing Long Bridge, constructed in 1904, is the only rail crossing over the Potomac River between the District and Virginia. It is owned by CSX Transportation (CSXT) and carries a mix of freight, intercity passenger, and commuter rail. The existing bridge and its approaches carry two tracks. The corridors to the north and south consist of three tracks, with plans to expand to four tracks.

Passenger, commuter, and freight railroad services play an important part in supporting the economic growth and vitality of the DC region. The Long Bridge is a key element of the regional commuter railroad network and national railroad system for intra- and intercity passenger rail service as well as freight railroad service along the U.S. Eastern Seaboard. Projections indicate that freight and passenger growth will exceed the capacity of the current two-track bridge across the Potomac River. Future demand will require new options and expanded infrastructure to enable efficient, continuous movement of passengers and goods across the Potomac and throughout the Eastern Seaboard.

In 2012, DDOT launched the Long Bridge Study, which evaluated the existing and future capacity needs of the Long Bridge Corridor. Operations modeling performed as part of the study determined that the existing bridge's daily capacity is 96 trains. In 2013, the bridge carried 79 trains per day, 56 passenger and 23 freight. This combination of daily freight and passenger trains accounted for 82 percent of the daily total capacity of Long Bridge.

During peak hours, railroad traffic was at 98 percent of capacity. Railroad traffic was at 70 percent of capacity during non-peak hours. Future train volume assumptions developed from an analysis process using operator plans and a national forecast database showed that, by the year 2040, operators would exceed the current daily 96-train capacity of Long Bridge by 70 trains per day.

NEPA PROCESS

FRA and DDOT initiated the formal NEPA process for the Long Bridge Project in August 2016. This process included a thorough alternatives development and two-step screening process that resulted in the two Action Alternatives and No Action Alternative considered in the EIS. Each action alternative results in a four-track corridor with two two-track bridges across the Potomac River and the George Washington Memorial Parkway; the main difference is that Action Alternative A retains the existing bridges while Action Alternative B replaces them.

After considering the potential short-term and long-term benefits and impacts, public and agency comments, and capital costs, FRA and DDOT selected Action Alternative A as the preferred alternative. Both action alternatives support the Purpose and Need<?> and provide the same anticipated benefits, but retaining the existing bridge requires a shorter construction duration, has fewer environmental impacts, results in the least overall harm to parkland and cultural resources, and results in a lower capital cost.

CSXT has confirmed that Long Bridge is sufficient to meet the needs of its freight customers for the foreseeable future. Therefore, there is no need to replace the existing bridge.

DDOT and FRA released the Draft EIS for public review and comment on September 5, 2019, and held a public hearing on October 22. The comment period closed on October 28. Next steps include development of a combined Final EIS and Record of Decision (ROD), which DDOT and FRA plan to release in Summer 2020.

CONSTRUCTION METHODS AND PHASING

The Long Bridge Corridor is in the core of the Washington



Metropolitan Area, crosses multiple National Park Service properties, and is an important corridor for both freight and passenger rail. Therefore, as part of the EIS, FRA and DDOT developed construction methods, access and staging locations, and an overall construction schedule to understand how the alternatives could be constructed while maintaining two railroad tracks in operation. Construction of the preferred alternative is estimated to take approximately five years.

TRAIN VOLUMES

Train operators plan to substantially increase the number of trains running in the corridor by 2040. To inform the evaluation of alternatives and their environmental impacts, FRA and DDOT coordinated with the train operators to understand the number of trains that would run in the Long Bridge Corridor. Based on input from the railroad operators, assumed growth in freight demand, and passenger operator plans, FRA and DDOT estimate that approximately 192 trains will run in the corridor by 2040.

A significant number of these trains would not be able to run without the additional capacity enabled by a new bridge. Currently, Virginia Railway Express and Amtrak operate trains across Long Bridge under an agreement with the bridge owner, CSXT. The agreement specifies a maximum number of trains each operator can run per day through the corridor. Without a new bridge, CSXT could not grant additional slots while maintaining enough capacity to meet its freight network demands.

6TH ANNUAL HSR POLICY FORUM

BUILDING CAPACITY FOR GROWTH

Contributed by: Chris Brady



More than 120 national and international passenger rail experts attended the sixth annual APTA High-Speed and Intercity Passenger Rail Committee's policy forum in early December in Washington, D.C.

The theme for this year's forum was, "Building Capacity for Economic Growth, and featured eight sessions that addressed various impacts and aspects of the evolution of high-speed passenger rail in the world and in the United States. David Cameron, a member of the committee's steering committee and the assistant director of the Rail Conference, International Brotherhood of Teamsters said he thought the forum was the best of all the forums held over the past six years.

BUILDING CAPACITY FOR ECONOMIC GROWTH

Following welcoming remarks from APTA leadership, the forum led off with a provocative and insightful presentation by Mike Alexander, the director of the Center for Livable Communities at the Atlanta Regional Commission. Alexander argued that shifting growth patterns in the U.S. are leading to high population densities in specific regional corridors which hollowing out many less dense and rural areas of the nation. Alexander said these population shifts demonstrate why it is so

important for the nation's economic future that the nation evolves and builds its intercity and high-speed passenger rail networks to connect talent and housing to these growth corridors. Alexander suggested that the growth of megaregions in the U.S. mimics the experience of Europe and Japan where high-density and medium distance corridors are served by high-speed rail networks.

CONNECTING MEGA-REGIONS & CORRIDORS

Picking up on many of Alexander's observations, Ken Sislak, a member of the APTA HS&IPR steering committee and former AECOM executive, led a robust discussion with forum attendees about strategies and benefits that could be realized by connecting megaregions and corridors. The session featured presentations by Dennis Newman, executive vice president, planning and strategy at Amtrak, Lori Wilcox, chief financial officer at Texas Central High-Speed Railway, Brian Kelly, chief executive officer, California High-Speed Rail Authority, Jennifer Mitchell, director, Virginia Department of Rail and Public Transportation, and David Henley, project director, the Northeast Maglev. Each speaker emphasized the importance of connecting their megaregions to promote continued employment growth, workforce performance, and meeting Americans' demand for safe and efficient transportation that doesn't damage the environment.

THE INTERNATIONAL PERSPECTIVE

Drawing on the experience of other nations' in the development and evolution high-speed passenger networks, Peter Gertler, senior vice president, strategic sales and advisory service with HNTB, facilitated a conversation between Marc Guigon, director, passenger department of the International Union of Railways (UIC) and

representatives from railway companies in Spain, Italy, Japan, China and France. Remarkably, despite the fact that the U.S. lags far behind many of the world's leading high-speed rail systems, the evolution of those systems started in many ways similar to the development now occurring in the U.S.

APTA recently signed a partnership memorandum with UIC, and UIC is committed to participate in future APTA programs including the April 2021 - APTA HS&IPR Rail policy Conference now being planned to be held in Philadelphia, PA. UIC also invited APTA members to participate in the upcoming UIC rail conference scheduled for Beijing in July 2020.

LUNCH WITH LEADERS

FRA Deputy Administrator Quintin Kendall and Beverley Swaim-Staley, president and CEO of the Union Station Redevelopment Corporation were the headliners for the forum's lunch.

Kendall outlined the administration's current plans and policy preferences for America's passenger rail program, giving significant credit to state rail agencies and the private sector for recent U.S. passenger rail developments. Kendall also noted that the department's top priority remains of finishing the installation of precision train control withing the deadlines set by Congress, and that the department is seriously engaged with the industry and Congress to improve the on-time performance of intercity passenger trains.

Swaim-Staley, the former secretary of the Maryland Department of Transportation and current president of the Union Station Redevelopment Corporation, described the history and future of Washington, D.C.'s landmark passenger rail terminal. The station was constructed in the early 1900s in response to congressionally-backed redevelopment plans for the District of Columbia, and over the years benefited and suffered from the rise, fall and renaissance of intercity passenger rail. In 2016, the Union Station Redevelopment Corporation announced the broad theses for the future expansion and renovation of Union Station that will facilitate expansion of both commuter and intercity passenger rail service. Negotiations are currently underway to finalize the station's redevelopment as well as the development of other nearby properties.

CONTINUED PARTNERING INITIATIVES – LEVERAGING TECHNOLOGY TO FACILITATE CONVERSION TO RENEWABLE FUELS AND REDUCED ENERGY INTENSITY

The APTA HS&IPR Committee places a high priority on

developing innovative collaborative relationships with a wide range of organizations including many non-traditional interests. SYSTRA Consulting Director Jeff Wharton and chair of the committee's partnership subcommittee has taken the lead this year in reaching out to and recruiting a range of collaborative partners, several of which are aligned with the environmentally conscience aspects of intercity and high-speed passenger rail.

As he did at APTA's TRANSForm conference in New York last October, Wharton pulled together a panel focused on a range of environmental and energy conservation issues. The panel included Natasha Vidangos, vice president, research and analysis for the Alliance to Save Energy, Patrick Arness, director of government relations for the Edison Electric Institute, Jim Mathews, president and CEO for the Rail Passengers Association, and Huelon Harrison, a member of APTA's executive committee and chair of APTA's Business Member Board of Governors.

Recognizing the need to reduce the transportation sector's carbon footprint and the role electrification and the use of renewable fuels can play in demonstrating the advantages of intercity and high-speed passenger rail, the panel offered perspectives and suggestions on how forum participants should work to promote greater acceptance of passenger rail as a mobility alternative.

The panel noted how important millennials and younger generations will be to the acceptance of passenger rail, and especially high-speed intercity passenger rail, but how challenging it is to both gain their attention and to motivate them to action. Perhaps, the panel observed, the environmental benefits of passenger rail and improvements in the quality of passenger rail customer service may garner the active advocacy of these generations. To put an exclamation point on this perspective, Jim Mathews urged forum attendees to address both the millennial generation as well as the membership of organizations like the American Association of Retired Persons (AARP) as the natural consumer and advocacy partners for intercity and high-speed passenger rail.

WHY BUSINESS NEEDS HIGHER PERFORMANCE PASSENGER RAIL

Proving the case for intercity high-speed rail takes a combination of public and private leaders willing to advocate for their ideas. Increasingly, as shown by APTA HS&IPR Legislative Subcommittee Chair Karen Hedlund's afternoon panel – Why Business Needs Higher

Performance Rail – those leaders come from today's leading industries.

Making the case that keeping the economy growing while maintaining the quality of life that today's workers demand were Facebook's Winsome Bowen, Paige Malott from Cascadia Rail, and Jeff Joines of the Brotherhood of Maintenance of Way Employees. This panel pointed out the huge contribution that MICROSOFT has made to efforts to bring true intercity high-speed rail from Eugene, OR, north through Seattle, WA, to Vancouver BC. This growing region is facing congestion and housing challenges that require new and innovative approaches to remedy. Each panelist illustrated how they are addressing these challenges, and how improved passenger rail service will improve the performance of the region's economy and the quality of life in the Cascadia corridor.

A MESSAGE FROM GOVERNOR INSLEE

As part of the Why Business Needs Higher Performance Passenger Rail, Washington Governor Jay Inslee offered a prerecorded video offering a full-throated endorsement of the proposed Cascadia Corridor project and the environmental and economic benefits high-speed rail will deliver to the Northwest and the nation over all. Inslee said the Cascadia project offered effective solutions and plentiful benefits. He urged forum attendees to do everything in their power to make both the Cascadia project and high-speed rail throughout the U.S. a reality.

BUILDING BI-PARTISAN SUPPORT FOR INFRASTRUCTURE

The challenge for this forum was to turn information into action by understanding and informing congress of the hoped-for policy outcomes of future legislation affecting intercity and high-speed passenger rail.

Chris Brady, vice chairman of the HS&IPR committee facilitated a discussion with Pete Cipriano, special assistant to the FRA administrator, Liz Hill, majority staff director of the House Rail, Pipelines and Hazardous Materials Subcommittee, and Alison Graab, a Surface Transportation Board detailee to the Senate Commerce Committee to explain what advocates for H-S&IPR seek and to learn what policy makers are able and willing to pursue.

Discussion focused on the reauthorization of the FAST Act and the continuation of the Rail Title in that

landmark statute. Congressional staff noted that FAST expires in less than a year, and with the press of major issues needing resolution that Congress now faces, how important it is to bring ideas and initiatives to the congressional staff for consideration in committee deliberations as quickly as possible.

'Great ideas are always welcome!' ...was the key takeaway from these speakers.

Cipriano elaborated on some themes touched on earlier in the day by the FRA deputy administrator, then went on to discuss the importance of the FRA's CRISI and State of Good Repair programs in today's continued expansions and improvement of transit and rail transportation in the US.

Peter observed that intercity high-speed rail could be poised for the kind of accelerated growth and improvement that has characterized the telecommunications industry; a welcomed message to HSR supporters.

LEADING THE HSRT TRANSFORMATION

Closing out the forum, Chris Brady facilitated a panel with Virgin Trains' Rusty Roberts and Tina Quigley, who discussed their successful passenger train service in Florida with further extensions there, and the proposed Virgin Trains service from California to Nevada; and Amtrak's Caroline Decker, who detailed her company's plans in the Northeast Corridors, including the roll-out of new Alstom train sets in the next 12-24 months, bringing a new level of service Amtrak's Northeast Corridor. Both Virgin Trains and Amtrak – though facing considerable challenges – are very optimistic about the future of intercity passenger rail and for the future promise high-speed intercity passenger rail in the U.S.

POST SCRIPT

From a solid data base of economic, employment, transportation and housing to projects planned and underway from coast-to-coast and border to border in the U.S. to examples of successful intercity passenger rail service abroad in similar corridors, the High-Speed Rail Policy Forum chartered participants' path to the halls of congress and the administration; identifying partners and those with common cause to bring state-of-the-art rail passenger service to the US.

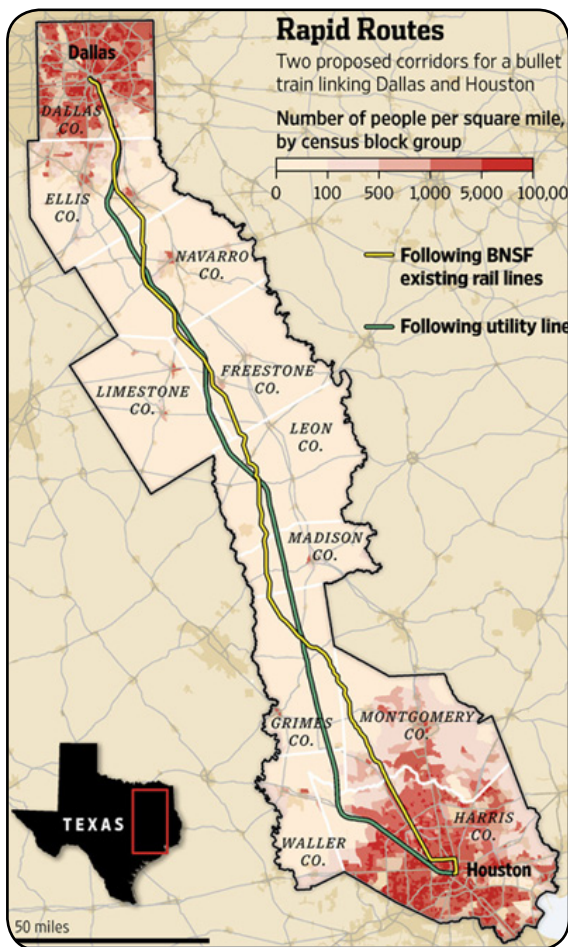
David Cameron, you were so right!

TEXAS TRIANGLE

PLANNING FOR TEXAS CENTRAL HIGH-SPEED RAIL CONTINUES

Contributed by: Wendy Wenner

In early 1989, the Texas High-Speed Rail Authority was formed to create a high-speed rail network that would connect what is known as the Texas Triangle linking Houston, Dallas-Fort Worth, San Antonio, and Austin. Back then, the initiative was challenged by Southwest Airlines and eventually shelved. Now, 20 years later, a new plan for high-speed rail in Texas is in the works, with a private company, Texas Central Railway, raising its own funds to build a line from Houston to Dallas. With nearly 50,000 Texans currently travelling between Houston and Dallas / Fort Worth regularly, and expectations of significant growth in the future there is opportunity for expansion.



The plans hit a milestone in September 2019, as the Texas Central entered into a design-build partnership for its \$20 billion high-speed rail project. The company announced it had signed an agreement with Salini Impregilo S.p.A., the Italian construction giant based in Milan, and its American subsidiary, Lane Construction. They are best known for complex infrastructure and civil engineering projects with the most recent being a massive joint venture that widened the Panama Canal in 2016.

The agreement calls for the design, construction and installation of 240 miles of high-speed rail guideway between Houston and Dallas / Ft. Worth. The goal is to offer a total travel time of less than 90 minutes, with convenient departures every 30 minutes during peak periods each day, and every hour during off-peak periods – with 6 hours reserved each night for system maintenance and inspection. Texas Central estimates the project will produce a \$36 billion economic benefit for the state during the next 25 years and will generate 10,000 construction jobs annually during peak construction.

This deal is contingent on several factors and decisions, ranging from federal approvals to raising billions from private investors and working out design and planned grade separations. Nonetheless, the company is optimistic that it can break ground as early as June of next year with a construction schedule of approximately six years before the first passengers could take the high-speed train between Dallas and Houston.

As currently planned, the Texas High-Speed Rail project will be constructed based on the Japanese bullet train systems, called Shinkansen. This project will utilize the latest generation of Shinkansen technology, N700 Supreme – which is the lightest, most aerodynamic and energy efficient train series to-date. It is currently operating on the

oldest high-speed line in the world, the Tokaido Shinkansen, which has connected Tokyo, Nagoya and Osaka, the three largest metropolitan areas in Japan, since 1964.

Today, Shinkansen trains carry more than 424,000 passengers per day at speeds over 200 mph. Texas Central is proud to be building upon the Shinkansen's legacy, and is excited for Texans to experience the Shinkansen's high-speed innovation in the Lone Star State!

APTA, AASHTO, TRB & SFPR

Contributed by: Eric Petersen

For the second time in two years, members of the APTA High-Speed and Intercity Passenger Rail Committee met with members of the American Association of Transportation and Highway Officials (AASHTO) Committee on Rail Transportation (CORT), the Transportation Research Board's (TRB) Intercity Passenger Rail Committee (AR010), States for Passenger Rail (SFPR) and other related organizations in Hartford, CT, September 16-19 to address joint interests in policy research and advocacy collaboration.

The joint meeting, long desired by each participating organization but not brought to fruition until last year in Miami, featured an extensive tour of the recently launched Hartford Line passenger rail service and two and a half days of in-depth discussions and presentations on critical and timely issues facing America's intercity passenger and commuter rail service providers.



MERIDEN STATION, ONE OF THREE NEW STATIONS ON THE HARTFORD LINE

HARTFORD LINE TOUR

On the first day of the joint conference, attendees were given a brief tour of Hartford's Union Station and then boarded a Hartford Line commuter train for a trip to Meriden, CT, to tour the Meriden train station and the nearby transit-oriented development (TOD) projects underway. During the train ride to and from Meriden, attendees received a briefing from state and CTrail representatives on the details and background of the Hartford Line, the collaboration between CTrail and Amtrak, and the current and anticipated economic impact of the project.

Connecticut Department of Transportation noted that "the Hartford Line was developed through a partnership between the Connecticut Department of Transportation (CTDOT), CTrail and Amtrak. The Hartford Line was created as a new regional passenger rail service that is expected to expand service between New Haven, Hartford and Springfield, MA. CTDOT is providing the new rail travel option, which consists of Amtrak and CTrail trains operated by a service provider—a joint venture of Transit America Services and Alternate Concepts (TASI/ACI). In addition to more rail service, the program includes significant infrastructure improvements to make the service safe, reliable, convenient and comfortable."

2nd annual joint meeting in Hartford: Tour new Hartford Line and seek opportunities for policy research and advocacy collaboration

The service operates 17 trains a day between New Haven and Hartford, and 12 of those trains continuing to Springfield. The Hartford Line quickly and easily connects to New Haven Line service to New York City, Amtrak Northeast Corridor rail services, and Shore Line East service, as well as CTfastrak BRT service in the Hartford/New Britain area.

OPENING SESSION

On the afternoon of the first day, each of the participating organizations met individually.

The TRB Intercity Passenger Rail Committee conducted its annual mid-year meeting. The agenda included a review of the committee's 2019 annual meeting; a presentation on the committee's recent communication initiatives; discussion of upcoming research initiatives and needs; an outline of the committee's 2020 annual meeting call for papers and their review; presentations on each of the committee's three subcommittees for the coming year; corridor updates on California, the Northeast Corridor including CTrail, and Texas Central; a presentation by Peter Schwartz (FRA) on a recently published Request for Information (RFI) on Parametric railway line model development; a discussion of the upcoming 2020 Annual Meeting workshop on the use of big data to manage and improve on-time performance; status of committee membership and announcement of subcommittee chairs – Karen Philbrick, Research Sub-Committee; Eric Peterson, Multi-Modal Sub-Committee; and Maite Pena-Alvarez, Socio Economic Sub-Committee; and updates of pending legislative items and the APTA Return on Investment Study.

APTA members who attended the three-day conference participated in both the TRB and States for Passenger Rail meetings.

DAY TWO

The agenda for the second day included opening remarks from James Trogon III, P.E., secretary, North Carolina DOT and chair of the AASHTO Council on Rail Transportation, and Joseph Giulietti, commissioner, Connecticut DOT. Their presentations were followed by presentations from Richard Andreski, bureau chief, public transportation, Connecticut DOT, a panel discussion on passenger rail developments in New England, and a panel discussion on rail safety.

Quintin Kendall, the newly appointed FRA deputy administrator, was the luncheon speaker.

Afternoon sessions included panel discussions on communicating the value of public investment in freight and passenger rail and a panel session featuring presentations from the Freight States, States for Passenger Rail and NGE, TRB, APTA, and the OneRail Coalition. Overall the presenters were very optimistic about developments in the U.S. passenger rail market but admitted there remain huge challenges that must be creatively addressed.

DAY THREE

The morning program for the third day featured a panel discussion on emerging rail service and markets, a panel presentation on planning and NEPA for freight and passenger rail projects, and a session on the availability of discretionary funding for freight and passenger rail projects.

The luncheon keynote speaker was Roger Harris, executive vice president, chief marketing and revenue officer for Amtrak.

The afternoon program included an FRA-led workshop on best practices in applying for discretionary grants, with a focus on completing benefit-cost analysis for state of good repair rail projects, and a panel discussion offering an overview of SHRP2 Railroad-DOT mitigation strategies.

LOOKING TO NEXT YEAR

This was the second year that AASHTO hosted the numerous rail-related organizations in an effort to promote collaboration and synergy. Planning for the effort was strong from the AASHTO side. For its part, the TRB Intercity Passenger Rail Committee has already begun both an internal discussion and conversation with AASHTO on strategies for next year's combined meeting, which will be held in Madison, Wisconsin.



ATLANTA TO CHARLOTTE

TRANSIT CONNECTIVITY

Contributed by: GDOT

The Piedmont-Atlantic Megaregion is home to some of the Southeast's fastest growing cities, and they're not slowing down.

According to regional transportation plans for Atlanta, GA, Greenville, SC, and Charlotte, NC, these three metro areas combined are expected to grow by about 45 percent in population and 37 percent in employment by the year 2040. FRA and Georgia DOT are exploring high-speed passenger rail between Atlanta and Charlotte as an additional travel option serving this growing corridor.

The Tier 1 Draft EIS was released September 30, 2019, for public and agency review. Public open houses were held during October and comments were collected through November 4. More than 2,400 individuals participated in the outreach process, indicating strong interest in new passenger rail options in those states.

Today, travelers between Atlanta and Charlotte can choose to board an Amtrak train at Atlanta's Peachtree Street Station (nearly a mile walk from the nearest public transit station) at 8 PM and arrive in Charlotte around 1 AM, pending no delays on the shared freight tracks. Or they can drive along Interstate 85 for about four hours, typically longer factoring in congestion, incidents and construction delays, which are becoming more common as population booms along this corridor.

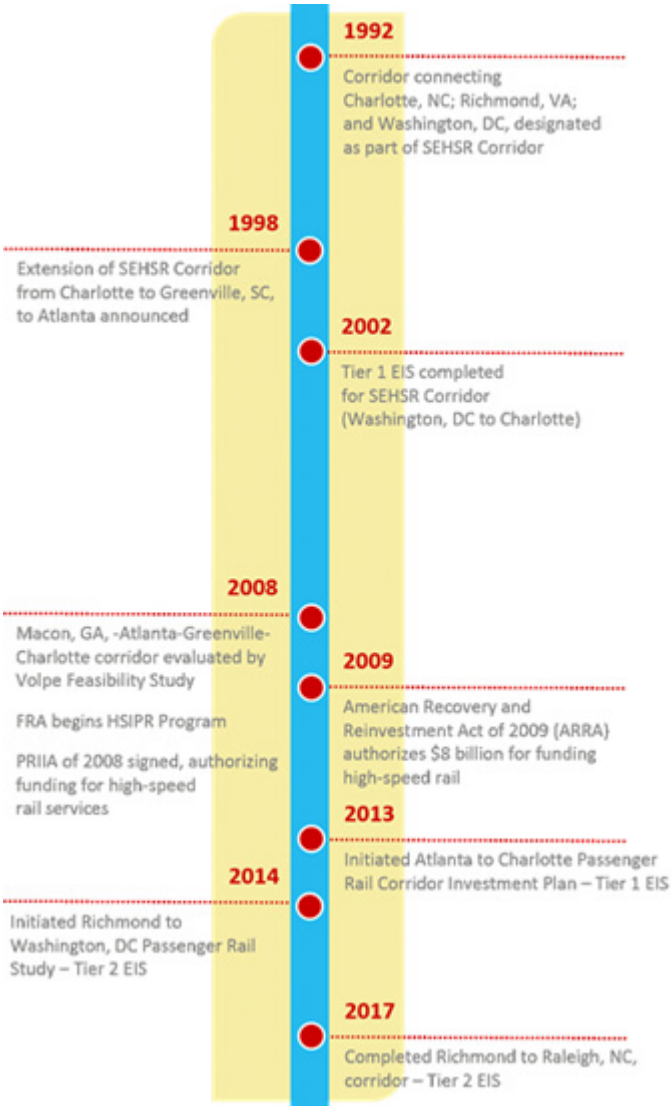
For a heftier price tag, travelers can choose to fly from the world's busiest airport, Hartsfield-Jackson Atlanta International, to Charlotte-Douglas Airport, which takes a little more than an hour in the air, plus security time, arriving early, and travel time to the airport. For a more affordable fare, travelers have the option of boarding an intercity bus in downtown Atlanta, which can take up to six hours depending on the number of stops and is subject to the same traffic delays as driving.

As the megaregion's population and economy grow, so will the need for more options for reliable, safe, efficient travel between Atlanta and Charlotte. High-speed rail provides a new choice for travelers. The recently released Tier 1 EIS lays the groundwork for future high-speed rail in the Southeast.

PROJECT HISTORY

This project's concept can be traced all the way back to 1998, when the federally designated Southeast High-Speed Rail (SEHSR) Corridor was extended south to Atlanta, tying in to Charlotte, Richmond, VA, and Washington, DC. In 2008, the Volpe Center conducted a feasibility study of the Atlanta-Charlotte corridor, which identified a dozen different routes, and concluded that six routes warranted additional consideration. In subsequent years, federal legislation paved the way for further development of the SEHSR Corridor. In 2013, FRA and Georgia DOT partnered to initiate a scoping phase that would lead to the Atlanta to Charlotte High-Speed Corridor Tier 1 EIS.

Corridor History Chart



Tier 1 EIS

Due to the scope and complexity of the Atlanta-Charlotte corridor, FRA and GDOT elected to use a tiered NEPA process. This Tier 1 EIS achieves three objectives:

1. Establish the project's purpose and need
2. Identify and evaluate potential corridor alternatives and their potential environmental impacts
3. Coordinate with relevant agencies, stakeholders, and the public

The Tier 1 EIS and Record of Decision (ROD) will recommend one Corridor Alternative for further study in a Tier 2 EIS. Tier 2 will select an actual alignment and make decisions on more specific topics like exact station locations; airport connections; train technology; and the approach into downtown Atlanta.

THE THREE ALTERNATIVES BEING CONSIDERED

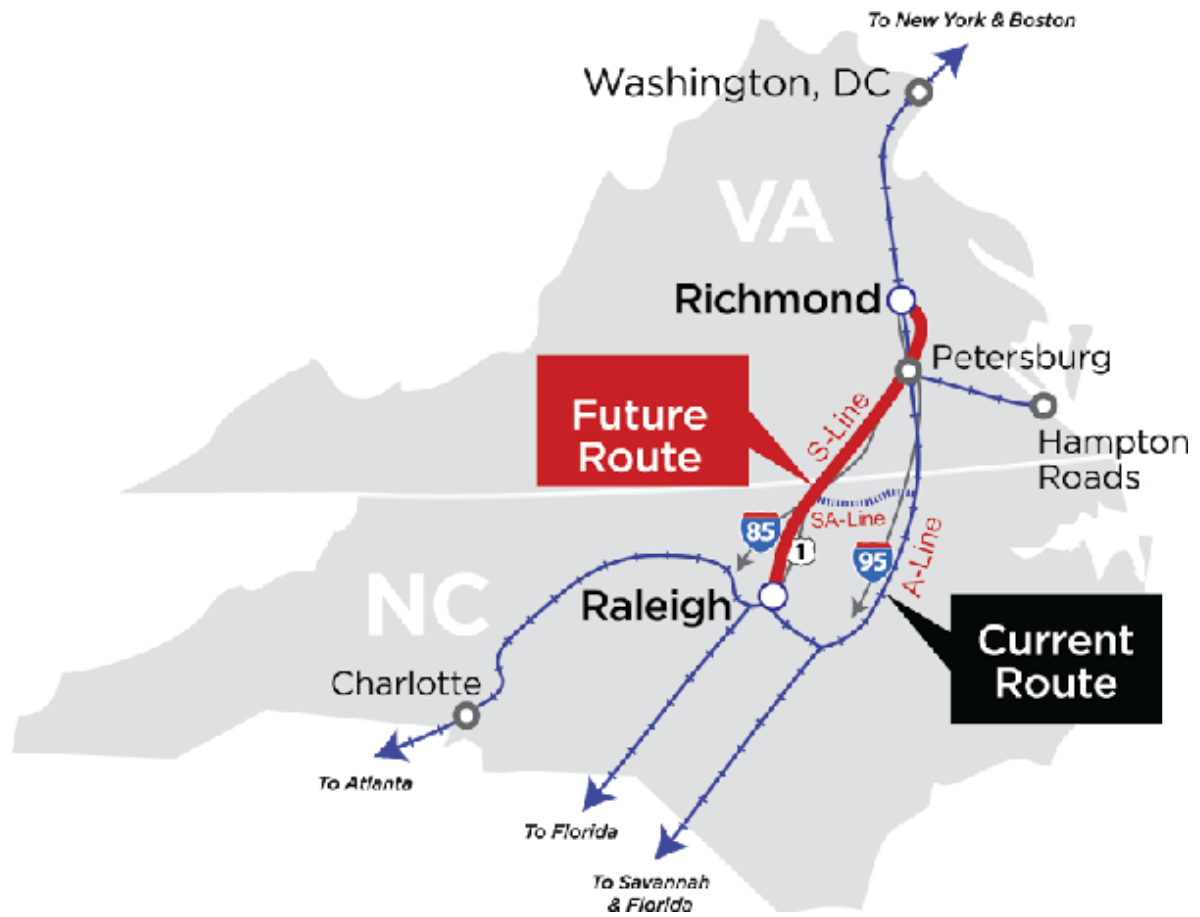
The DEIS analyzed three alternatives – the Southern Crescent, I-85, and the Greenfield – see below for a description and overview of each corridor alternatives.

Southern Crescent – This corridor would share right-of-way with AMTRAK and Norfolk Southern, getting top speeds of 110 mph. End to end travel time ranges from 4.5 hours to 5.5 hours. Its projected capital cost is \$2B - \$2.3B. This corridor is anticipated to use diesel trains and could use a combination of new and dedicated tracks.

I-85 - This corridor would be within the right-of-way of Interstate 85, potentially in the center median where possible, or adjacent to the interstate. Its projected top speed is 180 mph with an end to end travel time ranging from a little over 2.5 hours to just under 3 hours. Its

project capital cost ranges from \$13.3B to \$15.4B. This alternative is the most expensive of the three. Due to shrinking ROW availability, the cost assumes elevated structures would be needed in some locations. This corridor would use new dedicated tracks and could either use diesel or electric trains.

Greenfield – This corridor would be located on new right-of-way and its projected top speed is 220 mph. Travel time ranges from just over 2 hours to 2 hours and 44 minutes. Its projected capital cost ranges from \$6.2B to \$8.4B. Similar to I-85, the Greenfield would use new dedicated tracks and could use either diesel or electric trains.



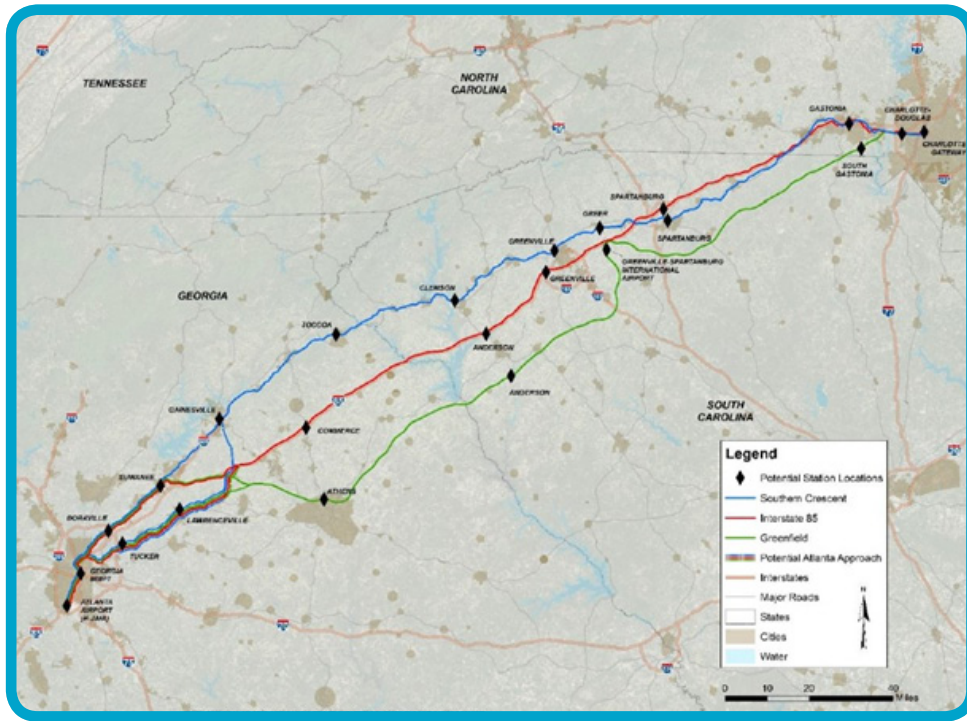


FIGURE PROVIDES A MAP OF THE THREE ALTERNATIVES ANALYZED DURING THE TIER 1 DRAFT EIS.

RECENT ACTIVITY

GDOT and FRA recently reached a major milestone for the project with the release of the Tier 1 DEIS on September 20, 2019, a result of multiple years of technical analysis and collaboration with agencies and the public. The public comment period was from September 20 to November 4, 2019.

During the public comment period, GDOT and FRA hosted three public meetings: one each in Atlanta, GA; Greenville, SC; and Charlotte, NC. Prior to the first meeting, more than 800 comments were submitted online via GDOT's project survey. Considering the number of years this project has been underway, receiving this number of comments online, prior to the first public meeting, is somewhat extraordinary.

The number of meeting attendees at the public meetings was impressive too. Atlanta hosted 84 meeting attendees; Greenville, 127; and Charlotte, 64.

Albeit the engineering component for the project has been limited during the Tier 1 EIS, the public has shown that there is an appetite for high-speed rail passenger service between Atlanta and Charlotte. Public support for the project plays a significant role as far as determining the next steps for the project.

NEXT STEPS

Now that the public comment period has concluded, GDOT and FRA are reviewing public comments submitted and will determine what is the most supported and viable corridor alternative to be selected as the Preferred Alternative. As with any Draft EIS, there will be several factors considered for choosing a Preferred Alternative, which potentially could be determined in early 2020.

In addition to identifying the Preferred Alternative, determining a sponsor for a Tier 2 EIS will be another decision point.

MOROCCAN PASSENGER RAIL

AL BORAQ, THE BEGINNING OF NETWORK TRANSFORMATION

The Moroccan National Railways (ONCF) celebrated the first anniversary of high-speed rail service between Tangier and Casablanca with the announcement in mid-November that ridership at the close of the calendar year 2019 will reach three million.

ONCF Director General Mohamed Rabie Khlie told media representatives that the high-speed Al Boraq service launched November 15, 2018, had carried 2.5 million passengers in the nine months from January to October. The service generated sufficient revenue to cover all operating costs.

The 205-mile line uses a fleet of Euroduplex TGV trainsets manufactured by Alstom, offering hourly service from 0600 to 2100 daily among Tangier, Kenitra and Casablanca, reaching a maximum speed of 200 mph. The Al Boraq service has reduced end point trip times from 4 hours, 45 minutes on the conventional line to only 2 hours, 10 minutes with an on-time performance of 97 percent.

ONCF indicated that its business forecast of six million riders by the end of 2021 remains on target, especially with the expansion of online sales that initially have only represented 15 percent of all ticket purchases.



The development of the infrastructure network with the high-speed railway station of the Casablanca - Tangeri line and the large Tangeri-Med port hub are flagship initiatives of the modernization project of Morocco.

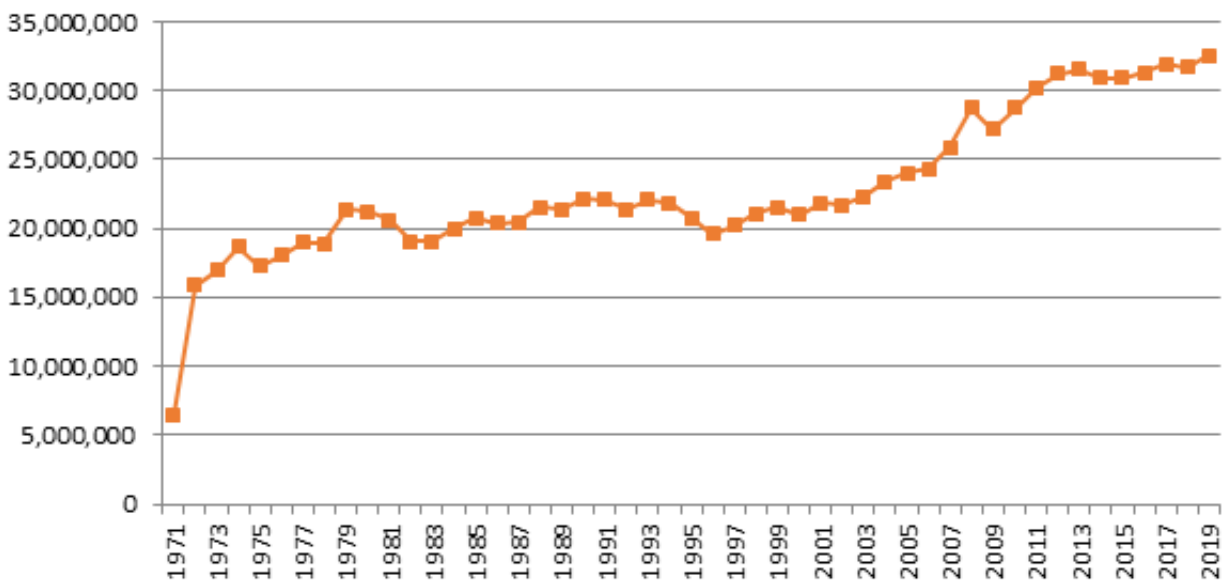
AMTRAK RIDERSHIP STATISTICS

POSITIVE GAINS MARK ANOTHER SUCCESSFUL YEAR

Yogi Berra once replied to a question about the popularity of a restaurant with one of his now famous maxims: "Nobody goes there anymore! It's too crowded." I suppose we can say the same for trains.

Ridership on the national Amtrak system is up again. Amtrak carried a record 32.5 million passengers in FY 2019 with record growth on the Northeast Corridor and state-supported lines. The latest ridership report from Amtrak reflects a year-over-year increase of 800,000 passengers—the highest in the system's history—and the ninth consecutive year Amtrak has carried more than 30 million passengers. The breakout of ridership included:

- **NORTHEAST CORRIDOR (NEC): 12.5 MILLION RIDERS** – increased 402,000 passengers (3.3 percent) representing yet another NEC record for ridership. The Acela service carried 3.6 million riders, a 2.6 percent increase from FY 2018. Northeast Regional service was up 3.4 percent at 8.6 million riders. NEC trains operated on-time 83.1 percent of the time.
- **STATE-SUPPORTED SERVICES: 15.4 MILLION RIDERS** – an increase of 2.4 percent. The state-supported corridor trains operated on-time an average of 75 percent of the time. The Michigan trains had the best on-time performance and achieved an OTP of 90 percent. The worst on-time performance was the California San Joaquin, which had an OTP of 26 percent.
- **LONG-DISTANCE TRAINS: 4.5 MILLION RIDERS** – a slight increase of 0.9 percent from 2018. Overall, extreme weather, floods, western forest fires and freight traffic congestion helped to temper the growth in long-distance ridership. Long-distance trains are on-time less than 50 percent of the time on average. The worst train was the Coast Starlight at 19.8 percent on-time. The Cardinal, which operates only three times a week, was on-time 69.8 percent of the time.



AMTRAK RIDERSHIP 1971-2019

PEOPLE'S REPUBLIC OF CHINA & THAILAND



The G2422 Fuxing (Rejuvenation) bullet train arrived at the Hohhot East Railway Station in North China's Inner Mongolia Autonomous, linking Beijing.

It is difficult to comprehend how quickly China advanced its passenger railway network in the past 15 years.

China was building steam locomotives for regular service until 1999 and continued to operate steam trains well into the 21st century. But high-speed rail development in China has been advancing at a breathtaking pace over the past 15 years.

China began construction of its first dedicated passenger 220 mph (350 km/h) high-speed line in 2005 and inaugurated revenue service on the Beijing-Tianjin line in June 2008. This first 75 miles of dedicated passenger line took just three years to build!

Compare this to California, where high-speed rail has been studied for more than 25 years and the first 119-mile Central Valley segment (Madera to Bakersfield) has been under construction since 2015. This initial operating segment (IOS) is not scheduled to open for revenue service until 2022.

By the end of 2018, and in the 10 years since the first line opened in 2008, China's "eight vertical, eight horizontal" high-speed railway grid network has been extended to 30 of the country's 33 provincial-level administrative divisions and reached 18,000 miles (29,000 km) in total length, accounting for about two-thirds of the world's high-speed rail system in commercial service. The high-speed rail building boom continues, with the network set to reach 24,000 miles (38,000 km) by 2025, completing its ambitious grid network.

And in 2019, China added three more Passenger Dedicated Lines (PDL) in November and December. The three new lines comprise:

- Wuhan – Shiyan;
- Rizhao – Qufu; and
- Zhengzhou – Fuyang.



Instead of hampering the high-speed train lines that run underneath the new flyover in Wuhan City, they built the new section at right-angles to where it will eventually sit.

All three lines have a design speed of 350km/h (220 mph) and an initial maximum operating speed of 300km/h (186 mph).

WUHAN AND SHIYAN

The 248-mile (399 km) Passenger-Dedicated Line between Wuhan and Shiyang was opened for revenue services November 29 as the first stage of a direct high-speed route linking Wuhan with Xi'an. The city of Shiyang is a major automotive manufacturing center in the northwest of Hubei province in Central China.



China Railway (CR) is initially operating 11 trains each way per day serving 13 stations. Additional services are scheduled to be introduced with the new national timetable on December 30. The fastest end-to-end travel time is 1 hour 57 minutes, compared with 5 hours 6 minutes on the existing conventional line. The connecting 186-mile (300 km) PDL from Shiyang to Xi'an is expected to be completed in 2023.

The project cost 52.7bn yuan (\$7.2 billion), of which 26.4bn yuan (\$3.7 billion) was contributed by CR and the regional authorities along the line; the remainder was raised from other sources including China Development Bank.

RIZHAO TO QUFU

The Rizhao–Qufu passenger railway is in Shandong Province, China. Construction of this section of the corridor commenced on May 31, 2017. It opened on 26 November 2019, connecting the port of Rizhao on the Yellow Sea with Qufu, home of Confucius and a major tourist destination. The 146 mile (235 km) long railway has a design speed of 350 km/h (217 mph).

The line has eight stations, with the initial service of 10 trains per day in each direction scheduled to be increased to 14 in the near future. The fastest Rizhao–Qufu journey time is now 1 hour 14 minutes, compared with 3 hours 13 minutes by the conventional line.

To the west, the soon-to-be completed Qufu – Hezi and Hezi – Lankao sections will take the total length of the route to 494 km.

ZHENGZHOU – CHONGQING

Zhengzhou–Wanzhou PDL connects Zhengzhou, the capital of Henan province, and Wanzhou District in Chongqing. The 242-mile (389 km) Zhengzhou – Nanyang – Xiangyang section of the Zhengzhou – Chongqing high-speed line started operation on December 1, 2019. The line has 11 stations between Zhengzhou East and Xiangyang East.



THAILAND

After years of delay, high-speed trains are coming to Thailand with one project under construction, another approved and others being considered. And as in the United States, many in the country are questioning whether high-speed rail is needed.

Both projects currently in the pipeline will employ Chinese high-speed rail technology. Though Thailand declined Chinese loans, the projects are considered a part of the Belt and Road Initiative (BRI), a plan that aims to connect China to the rest of Asia through new transport infrastructure. (See the article on China in SPEEDLINES #26.)

In October, a conglomerate led by Thailand's Charoen Pokphand (CP) Group signed a contract with the State Railway of Thailand (SRT) for construction of a high-speed rail line linking Bangkok's two airports, Suvarnabhumi and Don Mueang, to three eastern provinces. The conglomerate, which also includes the China Railway Construction Corp., will cover an investment of 224 billion baht (\$7.4 billion) in exchange for real estate concessions and a 50-year license to operate the line. The new high-speed line will operate in addition to the existing Airport Rail Link, an elevated train that connects Suvarnabhumi to Bangkok's metro system.

The new high-speed line is expected to begin service in 2024, with the 137-mile (222 km) line terminating at U-Tapao Airport, outside of Pattaya in Rayong province. Consequently, the government plans to move about 10 percent of flights from Bangkok to a redesigned U-Tapao to ease congestion at Suvarnabhumi and Don Mueang.

The planned line, beginning from Don Mueang then passing through Bang Sue, will also stop at Makkasan in central Bangkok before proceeding to Chachoengsao, Chonburi, Sriracha and Pattaya, a major tourist destination located 75 miles (120 km) south of Bangkok on the Gulf of Thailand.

HSR will reduce travel time between Bangkok's two airports to just 20 minutes. Currently, transferring between Suvarnabhumi and Don Mueang airports requires traveling by shuttle bus, which can last an hour or more during Bangkok's highly congested rush hours. Tourists will be able to travel from Bangkok to Pattaya in less than an hour. Currently, traveling to Pattaya from Suvarnabhumi Airport requires an expensive taxi ride, taking a cramped van or traveling across town to catch a bus from Ekkamai Terminal for the two-hour ride.

As part of this passenger rail infrastructure renewal and expansion, the State Railway will replace Bangkok's 103-year-old Hualamphong Station with a massive new rail hub in the city's Bang Sue district. The new station will serve passengers using both HSR and the country's existing railway network, which is being upgraded from single to double track.



LOS ANGELES – LAS VEGAS HSR PROJECT

GAINING MOMENTUM AND PUBLIC SUPPORT

Virgin Trains USA's proposed high-speed train between Las Vegas and Southern California is inching toward becoming a reality as the California Infrastructure and Economic Development Bank (IBank) approved a \$3.25 billion bond request to be pledged toward the \$4.8 billion project.

The funds will be used to fund constructing 135 miles of double-track electrified passenger rail lines in California, as well as a passenger and maintenance facility in the Victor Valley region as part of the project. The entire project would run 170 miles, including 35 miles in Southern Nevada, with a train station proposed to be located on Las Vegas Boulevard between Warm Springs and Blue Diamond roads in Las Vegas.

The bond approval is the largest in the IBank's history, the previous largest being \$1.65 billion approved in 2003 for toll bridge seismic retrofit work on the Bay Bridge between Oakland and San Francisco. It is yet another indication of California's continuing interest in developing an integrated rail passenger system as outlined in the California State Rail Plan (2018).

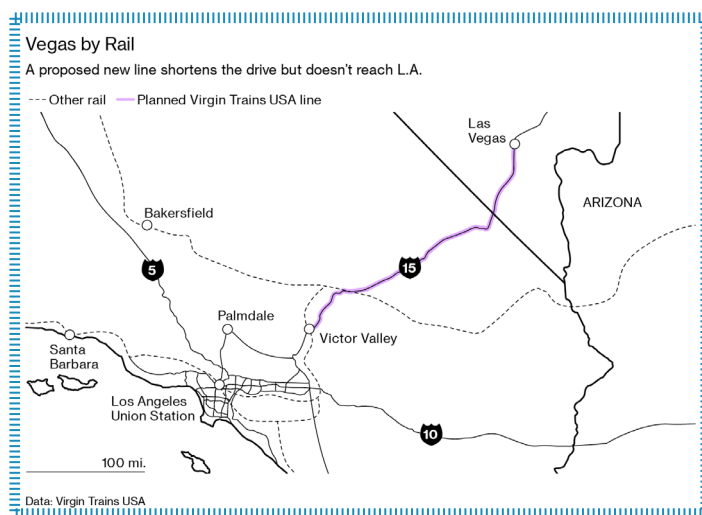
The \$3.25 billion bond request IBank approved comprises \$850 million through US DOT and \$2.4 billion in tax-exempt private activity bonds. Virgin Trains USA is seeking \$600 million in bonding authority from California through its debt limit allocation. Last month, a committee led by California Treasurer Fiona Ma approved the first \$300 million in tax-exempt private activity bonds, with another \$300 million to be considered next year.

Internal Revenue Service guidelines would allow Virgin Trains to market up to four times that amount, or \$2.4 billion, in tax-exempt private activity bonds.

Virgin also is seeking \$950 million in total private activity bonds from Nevada. It's seeking \$200 million in bonds from the state's debt limit allocation — which would allow Virgin to market \$800 million in bonds — and \$150 million through US DOT's bond program. As in California, the debt allocation bonds in Nevada would be requested in \$100 million amounts each of the next two years.

In total, Virgin Trains would have \$4.2 billion tied to the project if all bond measures are approved. If all bond requests are finalized, Virgin would break ground on the project in 2020 with a 2023 start to operations. The Las Vegas-Victorville line would be the initial portion of Virgin's plan to link downtown Los Angeles to Southern Nevada.

Neither Nevada nor California will be responsible for any of the money tied to the bonds.



UIC WORLD CONGRESS

■ BEIJING, CHINA FROM JUNE 30 - JULY 3, 2020

UIC HIGHSPEED 2020, the 11th world congress on High-Speed Rail, is being coordinated by UIC, China State Railway Group, Co., Ltd. and China Academy of Railway Sciences Corporation Limited (CARS) (CR), in collaboration with all parties involved in high-speed rail in China, and more generally with all UIC member railways. The congress will be held from 30 June – 3 July 2020 in Beijing. The UIC General Assembly will be held in Beijing the day before the opening of the Congress, on 29 June 2020.

The theme of the congress will be “Augmenting intelligent mobility” which will merge High-Speed Rail (HSR) and its interfaces with other transport modes.

‘The World Congress on High-Speed Rail comes back to China after ten years and will invite high-level government officials, CEOs of world-leading railway companies, senior HSR experts and managers, researchers and scholars, etc. to jointly shape the future of high speed railways worldwide. Parallel sessions covering the main subjects relating to High-Speed Rail (HSR) will be held. A technical tour to the first intelligent high-speed railway in the world, the Beijing-Zhangjiakou HSR will also be organized, taking the participants to the site of the 2022 Winter Olympics.

You are invited to submit papers to the Scientific Committee of the Congress.

Selection as a Speaker allows admission to the Congress without paying Congress fees*.

Submission of proposals will close on 31 December 2019.

Call for Papers Timeline:

Deadline for submission of abstracts: 31 December 2019

Confirmation of accepted abstracts: 28 February 2020

Deadline for submission of final presentations: 1 May 2020

For more information please visit: uichighspeed2020.com or contact the Secretariat of the congress: paper@uichighspeed2020.com

